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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,220	01/28/2004	Yoshihiko Uchida	Q79569	7643
23373	7590	06/14/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			HUYNH, ANDY	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/765,220

Applicant(s)

UCHIDA ET AL.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/16/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

In the Response to Restriction Requirement dated May 31, 2005, Applicant has elected Invention I (claims 1-8), drawn to a device without traverse is acknowledged. Accordingly, claims 9-14 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims 9-14, drawn to a method.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) based on an application filed in JAPAN, 2003-19995 on 01/29/2003.

### ***Information Disclosure Statement***

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed on 08/16/2004. The references cited on the PTOL 1449 form have been considered.

### ***Specification***

The disclosure is objected to because of the following informalities:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

*Claim Objections*

Claim 1 is objected to because of the following reasons.

In line 1, “.” is missing after “comprising”.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Figure 1 Prior Art, Applicant's admitted prior art (AAPA) in view of Callegari et al. (USP 6,207,472 hereinafter referred to as “Callegari”).

Regarding claims 1 and 5, Figure 1 Prior Art discloses an organic semiconductor element 1 as set forth in Description of the Related Art, comprises:

- an organic semiconductor layer 5 as a current channel;
- a gate insulation layer 4 consisting of an insulating material of an organic compound;
- a gate electrode 3 opposing to said semiconductor layer so that said gate insulation layer is interposed between said gate electrode and said semiconductor layer; and
- a source electrode 6 and a drain electrode 7 electrically connected in the vicinity of the two ends of the organic semiconductor layer respectively.

Figure 1 Prior Art fails to teach an organic semiconductor element comprises a gate oxide film consisting of a gate electrode material oxide between said gate electrode and said gate insulation layer, and the gate electrode consists of Al or Ta.

Callegari teaches in Fig. 6 and the corresponding texts as set forth in column 3, line 35-column 4, line 47 an organic TFT comprises a gate inorganic oxide layer 13 (col. 3 lines 62-63) and deposited on top of a gate electrode 12 made of Al (col. 3, lines 47-55) to provide a device gate insulator with a dielectric constant in the range of 15 or above which is adequate to provide satisfactory carrier mobility in the being fabricated device channel (col. 4, lines 8-12). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of an organic TFT comprising a gate inorganic oxide layer and deposited on top of a gate electrode made of Al, as taught by Callegari to incorporate into Figure 1 Prior Art to arrive the claimed limitations an organic semiconductor element comprises a gate oxide film consisting of a gate electrode material oxide between said gate electrode and said gate insulation layer in order to provide satisfactory carrier mobility in the being fabricated device channel.

Regarding claims 2-4, Figure 1 Prior Art and Callegari disclose all the claimed limitations except for the gate insulation layer is formed from a resin that is soluble in an organic solvent; the gate insulation layer is formed from a resin that is obtained from a monomer or oligomer that is soluble in an organic solvent; and the gate oxide film is formed by means of anode oxidation. However, the limitations "the gate insulation layer is formed from a resin that is soluble in an organic solvent; the gate insulation layer is formed from a resin that is obtained from a monomer or oligomer that is soluble in an organic solvent; and the gate oxide film is formed by means of anode oxidation" are taken to be a product by process limitation and

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consider non-limitation. In a product-by-process claim, it is the patentability of the claimed product and not of the recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. The Patent Office is not equipped to manufacture products by a myriad of processes put before it and then obtain prior art product and make physical comparisons therewith. In re Brown, 173 USPQ 685 (CCPA 1972). Also, a product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ I S at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Regarding claims 6 and 7, Figure 1 Prior Art discloses the organic semiconductor layer consists of a low/high molecular organic compound such as pentacene or similar.

Regarding claim 8, Figure 1 Prior Art and Callegari disclose all the claimed limitations except for the organic semiconductor element further comprises an intermediate layer consisting of an inorganic material between said gate oxide film and said gate insulation layer. However, an intermediate layer containing an inorganic compound may be provided between the gate oxide film and the gate insulation layer as set forth at page 7 lines 19-21 in the specification. It would have been an obvious matter of design choice to form an intermediate layer containing an

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inorganic compound between the gate oxide film and the gate insulation layer, since applicant has not disclosed that the intermediate layer containing the inorganic compound solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well without the intermediate layer.

### *Conclusion*

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ah

06/07/05



Andy Huynh

Patent Examiner